

ES 0.0 EXECUTIVE SUMMARY

Enbridge Energy, Limited Partnership (Enbridge) has applied to the U.S. Department of State (DOS) for a Presidential Permit for construction, connection, operation, and maintenance of facilities at the U.S./Canada border for a proposed pipeline and associated facilities for importation of heavy¹ crude oil from Canada. DOS receives and considers applications for Presidential Permits for such oil pipelines pursuant to the authority delegated to it by the President of the United States under Executive Order (EO) 13337, as amended. In the course of making its determination as to whether the issuance of the permit is in the “national interest,” DOS has undertaken an appropriate environmental review of the Alberta Clipper Project consistent with the provisions of the National Environmental Policy Act of 1969 (NEPA) and implementing regulations.

As the lead federal agency for the environmental review of the proposed Alberta Clipper Project (proposed Project), DOS prepared this Environmental Impact Statement (EIS) consistent with the requirements of NEPA and the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508) and DOS’ own implementing regulations at 22 CFR Part 161.

ES 1.0 PROJECT OVERVIEW

Overall, the proposed Alberta Clipper Project, in its entirety, would include approximately 1,000 miles of new pipeline, extending from Hardisty, Alberta, Canada to Superior, Wisconsin. The pipeline would have the capacity to deliver an average of 450,000 barrels per day (bpd) of heavy crude oil from a supply hub near Hardisty to an existing terminal in Superior. In Canada, the Project includes approximately 673 miles of new pipeline and associated facilities from Hardisty to the U.S./Canada border near Neche, North Dakota. The Canadian portion of the Alberta Clipper pipeline system has been approved by the Canadian National Energy Board and other Canadian reviewing entities, and is under construction.

In the United States, the proposed Alberta Clipper Project would consist of approximately 326.9 miles of new 36-inch-diameter pipeline and associated facilities installed primarily within or adjacent to existing Enbridge pipeline corridors. The Project also would require new construction at existing pump stations and construction of delivery facilities and mainline valves. For the purposes of this EIS, the 326.9-mile portion of the pipeline and associated facilities in the United States is considered the “Alberta Clipper Project,” the “Alberta Clipper pipeline,” or the “proposed Project”. Although DOS, as described in EO 13337, only has permitting authority for the crossing of the U.S./Canada border; under NEPA, however, this EIS evaluates the entire proposed Project to be constructed within the United States, from the U.S./Canada border to the terminus in Superior, Wisconsin.

ES 2.0 PROJECT PURPOSE AND NEED

The overall purpose of the Alberta Clipper Project is to transport additional crude oil from existing Enbridge facilities in western Canada into the United States and eastern Canada, in order to meet the demands of refineries and markets in those areas. Enbridge has proposed the Project to (1) meet the increased demand for heavy crude oil by refiners in the United States and offset the decreasing domestic crude oil supply from some regions of the United States that have traditionally served refineries in U.S. Petroleum Administration for Defense District II (PADD II – the U.S. Midwest); (2) reduce U.S. dependence on oil obtained from outside of North America by increasing access to more stable and secure

¹ When referring specifically to the oil that would be transported by the proposed Project in this EIS, the terms “crude” and “crude oil” are used interchangeably with the term “heavy crude oil.”

Canadian crude oil supplies; and (3) meet demonstrated shipper interest in an overall Enbridge system expansion.

ES 3.0 AGENCY AND TRIBAL PARTICIPATION

DOS, as the lead agency for the EIS, consulted with federal agencies and Indian tribes that would be required to issue permits associated with the proposed Alberta Clipper Project. The following federal agencies and Indian tribes have elected to participate as cooperating agencies in the NEPA process:

- U.S. Environmental Protection Agency (EPA);
- U.S. Army Corps of Engineers (COE);
- U.S. Fish and Wildlife Service (FWS);
- U.S. Forest Service (Forest Service);
- Natural Resources Conservation Service (NRCS);
- Farm Service Agency (FSA);
- Bureau of Indian Affairs (BIA);
- Fond du Lac Band of Lake Superior Chippewa (FDL); and
- Leech Lake Band of Ojibwe (LLBO).

The following agencies provided technical assistance to DOS in the environmental review process:

- U.S. Department of Transportation (DOT) – Office of Pipeline Safety; and
- Council on Environmental Quality (CEQ).

State agencies also were consulted to ensure that their needs for analyses in relation to their respective state permitting processes would be reflected in the EIS. State agencies participated in the scoping process and were invited to interagency meetings during the preparation of this EIS.

ES 4.0 SCOPING PROCESS

On July 27, 2007, DOS issued a Notice of Intent (NOI) to prepare an Environmental Assessment for the proposed Alberta Clipper Project in accordance with 72 Fed. Reg. 41381. In August 2007, DOS held 12 scoping meetings in the vicinity of the proposed route to provide the opportunity for public comment on the scope of the environmental review of the proposed Project. Based on comments received, DOS determined that the proposed Project would require an EIS as part of the environmental review process. On March 31, 2008, DOS issued an NOI to prepare an EIS in accordance with 73 Fed. Reg. 16920. In addition to its publication in the Federal Register, the NOI was distributed to affected landowners, federal agencies, Indian tribes, state agencies, municipalities and counties, elected officials, non-governmental organizations, the media, and interested individuals. After issuing the NOI for the EIS, DOS held a supplemental scoping meeting in May 2008 to obtain additional comments on the scope of the EIS. DOS also conducted six meetings with federal, state, and tribal officials during the week of May 5, 2008.

DOS received verbal, written, and electronic comments during the scoping comment period. All comments received during the scoping period were considered during preparation of the draft EIS (DEIS).

ES 5.0 PUBLIC REVIEW PROCESS

The DEIS was mailed to interested agencies, individuals, and organizations and was submitted to EPA for formal public notice of availability. DOS posted a notice of availability of the DEIS on its website, and the formal notice of availability for the DEIS was published in the Federal Register on December 5, 2008 in accordance with 73 Fed. Reg. 74221. Those notices indicated that the DEIS was available and had been mailed to individuals and organizations on the distribution list prepared for the proposed Project; they also described procedures for filing comments on the DEIS. In accordance with CEQ regulations implementing NEPA, the notice of availability and the Federal Register notice (dated December 5, 2008) established a comment period of at least 45 days, ending on January 30, 2009.

DOS sent a letter dated November 28, 2008, to interested parties announcing the times, dates, and locations of six public comment meetings that would be held to receive comments on the DEIS. The letter was also posted on the DOS website for the proposed Project. The public comment meetings were conducted to provide interested groups and individuals the opportunity to present oral and written comments on the DOS analysis of the environmental impacts of the proposed Project as described in the DEIS. At the request of LLBO and FDL representatives, DOS conducted two additional public comment meetings in January 2009. DOS sent a letter dated January 9, 2009, to interested parties notifying them of the locations, dates, and times of the additional comment meetings.

The text of the EIS was revised in response to comments on the DEIS, as appropriate, and with updated information that became available following issuance of the DEIS. This final EIS (FEIS) was mailed to the agencies, individuals, and organizations on the mailing list, including all those who requested a copy.

ES 6.0 CONNECTED ACTIONS

As a separate but connected action to the Alberta Clipper Project, Enbridge is proposing to construct, operate, and maintain the Superior Terminal Expansion Project. This project would consist of five new 250,000-barrel storage tanks and associated piping and facilities at the existing Enbridge terminal. The Superior Terminal Expansion Project is not part of the Presidential Permit application submitted to DOS and would be permitted separately from the Alberta Clipper Project appropriate federal and state agencies; however, the impacts associated with construction, operation, and maintenance of that facility are discussed in this EIS.

ES 7.0 ALTERNATIVES CONSIDERED

Alternatives to the proposed Alberta Clipper Project were analyzed to determine whether they would be reasonable and environmentally preferable to the proposed action. A No Action Alternative, system alternatives, major route alternatives, route variations, aboveground facility site alternatives, and Superior Terminal Expansion siting alternatives were considered in this EIS. Identification of alternatives to the proposed Project incorporated public comments and input received from federal, state, tribal, and local agencies.

ES 7.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Alberta Clipper Project would not be constructed and operated, and issuance of a Presidential Permit for the specific action of building and operating the Alberta Clipper pipeline would not be required. While this alternative would eliminate the environmental impacts directly associated with the proposed Alberta Clipper Project, it would not meet the proposed action's purpose and need, or provide the United States with its energy needs and security.

Although the No Action Alternative would eliminate the direct impacts of the Alberta Clipper Project in the Project area, it would not reduce the global, national, or regional demand for oil. Global demand is expected to continue to increase, although the rate of increase has slowed. With the No Action Alternative, crude oil from Canadian oil sands that could have been transported to the United States via the Alberta Clipper Project would likely be transported some other new pipeline to the United States or shipped to overseas markets, such as China and Japan. As a result, the No Action Alternative would not decrease the long-term development of the Canadian oil sands, and the environmental impacts of the transportation of the crude oil to the United States via other methods or transportation to overseas destinations would substantially increase some environmental impacts relative to the proposed Alberta Clipper Project.

The demand for crude oil in the United States is expected to rise slightly through about 2030. U.S. refiners have upgraded their refineries to process heavy crude oil, much of which is obtained from relatively unstable and insecure overseas sources. Current U.S. Energy Information Administration (EIA) predictions are that the Canadian oil supply will grow from approximately 1.5 million bpd in 2008 to over 4.3 million bpd by 2030 (EIA 2009). Implementation of the No Action Alternative would not alter the increasing demand for Canadian crude oil in the United States.

If the No Action Alternative is implemented, refiners would seek other means of obtaining the heavy Canadian crude oil, or attempt to obtain additional supplies from less stable and less reliable sources. This could involve actions such as construction of other pipelines to transport the crude oil from the Canadian oil sands into the United States or increasing overseas import of heavy crude oil by tanker, which may also require new pipelines or expansion of existing pipeline systems. It is likely that the impacts associated with those and other actions taken to meet the demand for heavy crude oil would have environmental impacts that would be at least comparable to those of the proposed Project and may be substantially greater. Further, increasing reliance on less stable and less secure supplies of heavy crude oil would not be in the national interest since it could result in an unreliable supply of energy.

ES 7.2 SYSTEM ALTERNATIVES

Several existing and proposed crude oil pipeline systems (and non-pipeline systems) that could theoretically serve the markets targeted by the proposed Alberta Clipper Project were assessed in this EIS. The analysis considered whether those systems would meet the proposed Project objectives while offering an environmental advantage over the proposed Project.

One system alternative considered was expansion of the existing Enbridge pipeline system. The Enbridge pipeline system consists of five pipelines operating between Natchez, North Dakota and Clearbrook, Minnesota, and four pipelines between Clearbrook, Minnesota and Superior, Wisconsin. The Southern Lights LSr (LSr) pipeline was recently constructed in the existing Enbridge right-of-way between the U.S./Canada border and Clearbrook, Minnesota to replace another pipeline to transport light crude oil. The existing Enbridge pipeline system, including the LSr pipeline, would not be able to provide the incremental capacity available for the heavy crude oil that would be transported in the proposed Alberta Clipper pipeline (450,000 bpd); therefore, they are not practical alternatives to the proposed action.

New construction of other crude oil pipeline systems (TransCanada's Keystone Pipeline Project and the proposed Keystone XL Project) also was considered. To serve the markets of the proposed Project in Minnesota, Wisconsin, and destinations farther south and east, the Keystone Project would require an additional branch line that essentially would duplicate the proposed Alberta Clipper Project between the U.S./Canada border in North Dakota to Superior, Wisconsin. Alternatively, it could require an extension from southern Illinois to refineries in the upper Midwest. Thus, it would not offer a significant environmental advantage over the proposed Project. The Keystone XL Project would be farther removed

from the Alberta Clipper Project area, and would require a pipeline two to three times as long as the proposed Alberta Clipper Project to deliver oil to Clearbrook, Minnesota and Superior, Wisconsin (for delivery to refineries farther south and east than Superior, Wisconsin).

A trucking alternative (hauling crude oil from Enbridge's Cromer, Manitoba facility to Superior, Wisconsin) also was considered. This alternative was found to have several disadvantages to the proposed Alberta Clipper pipeline, including increased potential for injury, property damage, and oil spills; increased traffic congestion; increased air emissions from fuel consumption; and potential service interruptions due to unfavorable weather and road conditions. Therefore, trucking of crude oil is not considered a viable alternative to the proposed Project. Hauling of the oil via railroad or barge was not a viable alternative to a pipeline because there is no existing railroad or waterway between the Manitoba facility and Superior, Wisconsin.

Replacement of an existing pipeline for transport of heavy crude oil to Superior also was considered. Replacing the existing 36- to 48-inch diameter heavy crude pipeline with a large enough pipe to haul both the existing capacity plus the 450,000 bpd capacity of the proposed Alberta Clipper Project would entail substantial safety, equipment, and constructability constraints. As a result, replacement is not considered the environmentally preferred alternative.

ES 7.3 MAJOR ROUTE ALTERNATIVES

In addition to the proposed route, three major route alternatives are considered in this EIS: a Straight Line Alternative, the Great Lakes Gas (GLG) Alternative, and the FDL Alternative. A separate route alternative analysis was requested for the portion of the proposed route in Wisconsin by the State of Wisconsin and those macro alternatives are described in the EIS as well.

The Straight Line Alternative would follow the shortest practical distance between the border crossing point in Natchez, North Dakota and Superior, Wisconsin. Because the Straight Line Alternative would be primarily a greenfield route (open, undeveloped land), it would likely result in greater impacts to existing land uses and habitat fragmentation during construction and operation relative to the proposed Alberta Clipper route (which generally follows the existing Enbridge pipeline right-of-way). Consequently, the Straight Line Alternative is not considered environmentally preferable to the proposed Project route.

The GLG Alternative would depart from the proposed Project route west of the Chippewa National Forest (CNF) and Leech Lake Reservation (LLR) near Bemidji, Minnesota and would then parallel the existing Great Lakes Gas Transmission Company right-of-way until it rejoins the existing Enbridge right-of-way. While the GLG Alternative would avoid the U.S. Highway 2 corridor, the proposed Project route would be slightly shorter. The proposed route would cross less open water, prime farmland, forestland, and agricultural land; and cross two fewer perennial waterbodies. Therefore, the GLG Alternative is not considered environmentally preferable to the proposed Project route.

The currently proposed Alberta Clipper route would traverse the FDL Reservation along the existing Enbridge pipeline corridor since FDL and Enbridge came to an agreement in March 2009 for the proposed Project to cross the FDL Reservation. As a result, the current FDL Alternative would be the route that Enbridge had previously proposed around the FDL Reservation that would avoid the Reservation while limiting the pipeline length and associated environmental impacts. This route would consist of a new linear corridor that would skirt just outside the FDL Reservation by departing the existing Enbridge right-of-way at MP 1056.2, turn south, and then east to rejoin the Enbridge pipeline right-of-way at MP 1072. A comparative analysis was conducted to evaluate the potential impacts associated with the currently proposed route that would follow the existing Enbridge pipeline right-of-way through the FDL Reservation as compared to the potential impacts of the FDL Alternative route.

around the Reservation. Based on this analysis, DOS concludes that the FDL Alternative that would skirt the FDL Reservation (to the west and south) is not considered environmentally preferable to the currently proposed Project route across the FDL Reservation.

The State of Wisconsin requested that Enbridge conduct an alternative analysis for the pipeline route that would cross lands of Wisconsin, with additional emphasis on state-designated resources. Seven route alternatives were analyzed in Wisconsin. None of the macro alternatives within the State of Wisconsin reduced impacts to the environmental or social resources overall when compared to the proposed route which follows the existing Enbridge right-of-way. While some of the alternative routes avoid certain state-designated lands, Enbridge has developed a route variation and modified construction methods to minimize impacts to these areas. Each alternative is longer than the proposed route and many require additional miles of new right-of-way, both of which increase temporary and permanent impacts compared to the proposed route.

ES 7.4 ROUTE VARIATIONS

As part of the route development and selection process, numerous route variations to the initially planned Project route have been incorporated into the proposed route. These variations were developed based on discussions with landowners, state agencies, and Project engineers to reduce or minimize impacts to natural resources and address landowner concerns.

Twenty-four minor route variations have been incorporated into the proposed Project to avoid or minimize impacts to natural or cultural resources, reduce or eliminate engineering and constructability concerns, and avoid or minimize conflicts with existing or proposed residential and agricultural land uses. Further evaluation is continuing to address some remaining agency and landowner concerns, and additional minor route alignment shifts most likely would be required prior to and during construction to accommodate unforeseen site-specific constraints related to other engineering, landowner, and environmental concerns.

ES 7.5 ABOVEGROUND FACILITY ALTERNATIVES

The proposed Project was designed to follow the existing Enbridge pipeline alignment throughout most of its length. Consequently, the proposed Project route passes through the existing pump stations. The proposed Project was designed with all additional pumping equipment to be installed within the boundaries of the existing pump stations. Alternative pump station sites would involve developing new pump stations that would cause new environmental disturbances. Therefore, there are no potential alternative pump station sites that would result in fewer environmental impacts than expanding the existing sites as proposed.

ES 7.6 SUPERIOR TERMINAL EXPANSION PROJECT ALTERNATIVES

The Superior Terminal Expansion Project is a connected action to the proposed Alberta Clipper Project since Enbridge has indicated that additional storage is necessary to handle the oil that would be transported by the Alberta Clipper Project. The environmental review and permitting of the Superior Terminal Expansion Project is being conducted by other federal and state agencies, including the COE and the Wisconsin Department of Natural Resources (WDNR); DOS has no regulatory or permitting authority associated with the Superior Terminal Expansion Project. The potential impacts associated with the proposed location for this connected action are discussed throughout Section 4.0 of this EIS.

An alternatives analysis was conducted by Enbridge for this expansion project at the request of the COE and WDNR. The Superior Terminal Alternatives Analysis is provided in Appendix S. The proposed site

for the Superior Terminal Expansion Project would be located on the property of the Superior Terminal. Construction at the proposed location would permanently fill 11.3 acres of wetland and would temporarily impact an additional 3.2 acres of wetland.

ES 8.0 ENVIRONMENTAL ANALYSIS

Construction and operation of the proposed Alberta Clipper Project would result in numerous impacts to the environment. DOS evaluated the impacts to geology, soils, water resources, vegetation, wildlife, fisheries, special-status species, land use, visual resources, socioeconomics, cultural resources, air quality, noise, and safety. Enbridge proposed mitigation measures to minimize these impacts; and DOS recommended additional measures to further avoid, minimize, and mitigate potential impacts in accordance with federal and state permitting requirements. DOS also considered the cumulative impacts of this proposed Project with other past, present, and reasonably foreseeable future actions in the area.

Construction of the proposed Alberta Clipper Project would disturb approximately 6,402.1 acres of land. After construction, approximately 2,244.2 acres would be retained for operation of the proposed Project; this includes the pipeline right-of-way and aboveground facilities.

ES 8.1 GEOLOGY

The proposed Alberta Clipper Project would not involve substantial topographical alteration and would not disturb any geological features protected by federal or state laws. In general, the bedrock along the proposed Alberta Clipper Project route is buried so deeply by glacial deposits or soils that it would not be encountered during construction. Less than 1 percent of the proposed pipeline route may require blasting. Pleistocene-age mammal fossils may be unearthed during excavation activities in the area of the proposed Project; however, it is unlikely that any scientifically significant fossils are present in the area of the proposed Project.

Mineral resources that may be affected by the proposed Project include sand and gravel. Because the proposed pipeline would be installed mainly within and adjacent to an existing right-of-way, no additional restrictions on mineral resources would be expected from the proposed Project.

Potential geologic hazards in the proposed Project area include seismicity, landslides, subsidence, and flooding. Seismic activity is not expected to pose an unacceptable risk to the proposed Project because the area through which the pipeline would be constructed and operated is a low seismicity area. Proposed construction techniques, along with erosion control and slope stabilization, would reduce the risk of landslides. Subsidence may occur in portions of the proposed Project area, and Enbridge has proposed mitigation measures to reduce these impacts. As the pipeline would be buried under a minimum of 36 inches of cover, according to DOT regulations, the risk to the proposed pipeline from potential flooding events would be reduced.

Overall, geologic impacts associated with routine operations and maintenance of the proposed pipeline would be minimal. Routine pipeline operation and maintenance are not expected to affect physiography or bedrock geology, paleontological resources, mineral resources, or flooding.

ES 8.2 SOILS

Construction of the proposed Alberta Clipper Project would disturb soils, resulting in increased potential for erosion, compaction, and mixing of topsoil; damage to agricultural drainage tiles; and introduction of rock to the soil. Agricultural production on approximately 2,528.8 acres would be temporarily lost from production for the construction season. Enbridge has proposed construction procedures in state-specific

Environmental Mitigation Plans (EMPs) (Appendix C) and an Agricultural Mitigation Plan (AMP) (Appendix F) that are designed to minimize the likelihood and severity of these impacts and to mitigate where impacts are unavoidable. Designated Environmental Inspectors would ensure implementation of measures in Enbridge's Construction Environmental Control Plan (Appendix M) and compliance with applicable regulations and permits.

There are no designated contaminated waste sites within 0.5 mile of the proposed pipeline route in North Dakota; however, petroleum-contaminated soils may remain in the pipeline right-of-way near Joliette, North Dakota associated with a crude oil spill in 1989. Site investigations are being completed at this location prior to construction of the proposed Project, and appropriate avoidance or minimization measures implemented, as warranted, in coordination with the North Dakota Department of Health. Sixteen contaminated waste sites were identified within 0.5 mile of the pipeline route in Minnesota, including five sites identified in Itasca County. Eight unpermitted dumps were identified in Minnesota in several counties, including Pennington, Polk, Clearwater, Itasca, and Carlton. One Superfund site was identified near the City of Cass Lake, Minnesota (St. Regis Company Superfund Site at MP 954.9). Enbridge has proposed a route through this area where impacted soil is not present based on site investigations. Seven contaminated waste sites are located within 0.5 mile of the proposed route in Wisconsin (five are leaking storage tanks and two are spill sites) All of these sites are located within approximately 2 miles of each other along the proposed pipeline route (from MP 1096.3 to MP 1097.9).

In northwestern Minnesota, there is also a concern related to anthrax spores in soils. Enbridge has developed an Anthrax Mitigation Plan (Appendix I) to address the potential exposure of animals to anthrax spores resulting from construction activities.

Minor impacts from operational maintenance of cleared areas may lead to increased erosion by wind or water. Maintenance activities may lead to localized compaction due to vehicular traffic, and incidental soil contamination due to minor leaks from maintenance vehicles may occur.

Overall, construction and operation of the proposed Project are expected to cause minor impacts to soil resources with implementation of the existing Enbridge plans and compliance with applicable regulations and permits.

ES 8.3 WATER RESOURCES

Many of the aquifers present in the subsurface beneath the proposed route are isolated by the presence of glacial till, which characteristically inhibits downward migration of water (or contaminants) into these aquifers. Shallow or near-surface aquifers are present beneath the proposed route. Implementation of Enbridge's procedures for addressing spills (SPCC Plan [Appendix E]) would reduce the potential impact during construction. Only short-term fluctuations of groundwater levels are expected during construction, and recharge is expected to occur in a short period after construction.

The proposed Alberta Clipper Project route would involve a total of three perennial and 24 intermittent waterbody crossings in North Dakota; 76 perennial and 86 intermittent crossings in Minnesota (15 additional crossings have not yet been surveyed), and one perennial and 13 intermittent waterbody crossings in Wisconsin. The waterbody crossing methods indicated in Appendix P were proposed by Enbridge based on agency consultation, regulatory protection, biological communities present in each waterbody, and engineering issues. These waterbody crossing methods have been proposed in consultation with the COE; final crossing methods will be determined as part of the COE permit and/or state certification and licensing process.

Construction of the pipeline could result in temporary or short-term impacts due to increased sedimentation, degradation of aquatic habitat from instream construction activities, increased runoff and erosion, changes in channel morphology and stability, temporary reductions in flow during hydrostatic testing activities, alteration of aquatic habitat, and temporary to short-term surface water quality degradation during or after construction from disposal of materials and equipment or vehicle spills and leaks. Various mitigation measures are proposed in the state-specific EMPs (Appendix C) to avoid and minimize these potential impacts.

Overall, it is not anticipated that groundwater or surface water quality would be significantly affected during pipeline construction or operation.

ES 8.4 WETLANDS

Approximately 1,346.16 acres of wetlands would be impacted during construction of the proposed Project, 820.64 acres of which would be permanently maintained in an herbaceous state during operations². The predominant wetland types that would be crossed by the proposed Project are forested and scrub-shrub communities. In general, wetlands are of great functional and social significance, providing surface water storage, shoreline stabilization, streamflow maintenance, groundwater recharge, sediment removal and nutrient cycling, aquatic productivity, production of trees, production of herbaceous growth, production of peaty soils, and plant and wildlife habitat.

To minimize potential construction and operation impacts, Enbridge would implement procedures outlined in the state-specific EMPs (Appendix C) for wetland crossings. Enbridge would minimize impacts and restore wetlands affected by construction activities, to the extent practical. In addition to standard construction efforts, winter construction has been proposed for up to 25 miles of expansive wetlands. Enbridge has prepared a Winter Construction Plan (Appendix O) that identifies several mitigation measures to reduce impacts to wetlands associated with winter construction activities.

The proposed pipeline would cross the Pokegama Carnegie Wetlands State Natural Area/Area of Special Natural Resource Interest and the Douglas County Forest in Douglas County, Wisconsin, resulting in temporary and permanent impacts to wetlands and forestland. Enbridge is currently consulting with WDNR and the COE to conduct an alternatives analysis in this area and has developed the Pokegama Construction, Restoration, and Maintenance Plan (Pokegama CRM Plan) (Appendix T) that would minimize impacts to these resources.

Overall, temporary and permanent impacts to wetlands, mitigated according to Enbridge plans and agency requirements, would result in minor impacts to wetland resources.

ES 8.5 TERRESTRIAL VEGETATION

Vegetation classes potentially affected by the proposed Alberta Clipper Project during construction upland forested lands (1,254.5 acres), agricultural lands (2,528.8 acres), developed lands (617.2 acres), open lands (655.4 acres), and wetlands (1,346.2 acres). Impacts to herbaceous habitats generally would be shorter term than those to woody communities, with herbaceous vegetation typically becoming reestablished within 3 years. As woody vegetation would take longer to reestablish after clearing, construction impacts to shrubland would last approximately 5 to 10 years and impacts to forestlands could last 50 years or more. The primary impacts to vegetation from construction would be cutting, clearing, or

² These acres of impacts account for all impacts to wetlands associated with the proposed Project; use of access roads or pipe/contractor storage yards would not impact wetlands.

removing the existing vegetation within the construction work area, and the potential introduction of noxious weeds.

Vegetation within the permanent right-of-way would be maintained in an herbaceous state during operations, including areas currently composed of forested lands (622.2 acres), agricultural lands (569.4 acres), developed lands (36.7 acres), open lands (195.2 acres), and wetlands (820.7 acres). Permanent impacts would occur within the permanent right-of-way, where trees and shrubland would be removed and prevented from reestablishing through the periodic mowing and brush clearing required for pipeline operation and inspections.

Enbridge has identified several measures to limit impacts to vegetation in the AMP (Appendix F), state-specific EMPs (Appendix C), Noxious Weed Plans (Appendix H), and Revegetation and Restoration Monitoring Plans (Appendix K).

DOS has recommended additional mitigation measures to address potential impacts to vegetation communities of conservation concern and noxious weeds. These measures include avoiding damage between April 1 and July 1 to live, standing residual oak trees adjacent to the right-of-way in counties where oak wilt occurs; and developing a Construction Mitigation Plan (CMP) for the wetland complex located between MP 853 and MP 854 to protect this complex. DOS has recommended that revegetation in non-agricultural areas be considered successful if, upon visual survey, the density and cover of non-nuisance vegetation is similar in density (i.e., greater than 70 percent) and cover to adjacent undisturbed lands.

With implementation of these measures, impacts to vegetation would be minor and generally short term, although impacts to forested lands would be long term to permanent.

ES 8.6 WILDLIFE

Construction and operation of the proposed Alberta Clipper Project would result in both short-term disturbance and long-term modification to wildlife habitats, including impacts from habitat fragmentation and widening of the existing right-of-way. Estimated habitat impacts by land cover categories for the entire Project include upland forested lands (1,254.5 acres), agricultural lands (2,528.8 acres), developed lands (617.2 acres), open lands (655.4 acres), and wetlands/open water (1,346.2 acres). Total habitat loss and alteration due to pipeline construction would be small in the context of available habitat because of the linear nature of the Alberta Clipper Project and the extent of collocation with existing pipelines proposed. Normal operation of the pipeline would not be expected to result in significant effects on wildlife. Estimated permanent habitat impacts by land cover categories include forested lands (622.2 acres), agricultural lands (569.4 acres), developed lands (36.7 acres), open lands (195.2 acres), and wetland/open water (820.7 acres).

To limit potential construction and operation impacts to wildlife, Enbridge has identified mitigation procedures in its state-specific EMPs (Appendix C), Revegetation and Restoration Monitoring Plans (Appendix K), and Noxious Weed Plans (Appendix H), as well as in the AMP (Appendix F) and Migratory Bird Nest Avoidance and Monitoring Plan (Migratory Bird Plan - Appendix V). Pipeline construction would be conducted in accordance with required permits. In addition, DOS has recommended that Enbridge finalize plans to survey for migratory bird nests during the nesting season and continue to develop measures to avoid impacts to migratory bird nests in consultation with FWS.

Implementation of measures in the Enbridge plans, along with the mitigation measures recommended by the COE, FWS, and DOS, would reduce impacts to wildlife. Consequently, overall impacts on wildlife resulting from the Project are expected to be minor.

ES 8.7 FISHERIES

The proposed Alberta Clipper Project primarily could affect fisheries resources by loss or alteration of habitat, reduced spawning success, direct and indirect mortality, adverse health effects, and loss of individuals and habitats due to hydrostatic testing and exposure to toxic materials. Enbridge would adhere to agency recommendations on timing windows for instream work. All stream crossings would require review and approval by the COE and other relevant agencies prior to construction. In addition, Enbridge would need to demonstrate to the COE that each waterbody crossing method is the least environmental damaging practicable alternative (LEDPA) in accordance with the EPA 401(b)(1) guidelines and COE's regulations.

Enbridge proposes to modify the proposed crossing method based on flow conditions at the time of construction. Consequently, the open-cut method would be used for waterbodies planned as a dry crossing, if the waterbody is dry or has no perceptible flow at the time of construction. Alternatively, a dry crossing method would be used for waterbodies planned as an open cut but with perceptible flow at the time of construction. Potential impacts would be avoided and minimized to the degree practical by implementing best management practices (BMPs). The state-specific EMPs (Appendix C) describe the BMPs that would be used for each type of waterbody crossing to reduce potential effects on fish and aquatic/streambank habitat. To minimize the impacts of construction activities on fish and their habitats, Enbridge generally would complete all open-cut instream activity for minor waterbody crossings (less than 10 feet wide) within 24 hours and all activity for intermediate (10 to 99 feet wide) and major (100 feet wide or greater) waterbodies would be crossed in less than 48 hours, not including those crossed by horizontal directional drill (HDD) methods. In addition, DOS has recommended that Enbridge develop a CMP for the Lost River that includes confirmation of the crossing method, site-specific mitigation to minimize impacts, a list of all sediment and erosion control equipment that would be on-site, and an endangered resource plan.

Implementation of the Enbridge plans and DOS-recommended mitigation for waterbody crossings would result in overall minor impacts to aquatic habitat and organisms from construction of the proposed Project.

ES 8.8 THREATENED, ENDANGERED, AND SENSITIVE ANIMALS AND PLANTS

Federally-listed threatened, endangered, or candidate species identified by FWS as potentially being affected by the proposed Alberta Clipper Project include Kirtland's warbler, piping plover, Canada lynx, gray wolf (delisted by FWS in a final rule dated April 2, 2009; effective May 4, 2009), Dakota skipper, and western prairie fringed orchid.. It was determined that the proposed Project either would have no effect or may affect, but would not be likely to adversely affect, these federally-listed and candidate species. Section 7 informal consultation with FWS has been completed, and FWS has concurred with the determinations presented in the EIS for federally-listed threatened, endangered and candidate species.

In addition to the federally-protected species, several species considered threatened, endangered, and sensitive by states and tribes were identified as potentially being affected by the proposed Project. Construction of the Alberta Clipper Project would result in a small reduction in available habitats for some sensitive bird species, mammals, aquatic animals, and sensitive plants. DOS has recommended clearing of vegetation during non-nesting periods to reduce impacts on sensitive birds and relocating creek heelsplitter mussels encountered in the Swan River (MP 1024.2) prior to instream construction. Impacts to sensitive mammals, plants, and aquatic animals would be minimized by implementation of Enbridge protection measures and the additional measures recommended by DOS, in accordance with the expected permitting requirements of applicable agencies.

ES 8.9 LAND USE

Land uses that would be affected by the proposed Alberta Clipper Project include agriculture, open land, wetlands, waterbodies, residential land, and recreational and other special interest areas. In general, most lands required for construction would be temporarily impacted, while some existing uses of lands required for operation of the Project would be permanently impacted. Construction of the proposed Project would affect the following land use categories: forested lands (1,254.5 acres), agricultural lands (2,528.8 acres), developed lands (617.2 acres), open lands (655.4 acres), and wetland/open water (1,346.2 acres). Total acres that would be affected by the proposed Project are 6,402.1 acres.

To address potential impacts to agricultural lands, Enbridge has proposed a number of mitigation measures that are detailed in the AMP (Appendix F). Further, Enbridge would compensate all landowners for lost crops and any documented damage caused by construction activities.

On open lands, construction would require clearing of herbaceous plants and shrubs on the construction right-of-way and construction work areas. Clearing of these shrubs and plants would result in some minor impacts. Enbridge would reseed and mulch upland open land areas after construction is completed.

Permanent impacts to forested lands would be incurred in the areas within the permanent right-of-way that would not be allowed to revert to pre-construction cover. Even in areas that would be able to revert to forested land, complete recovery of these areas would require decades. Therefore, pipeline construction in forested areas would cause a long-term to permanent, localized impact on forested land.

Enbridge routed the proposed pipeline in an effort to minimize the number of residences impacted. As a result, Enbridge has been involved in easement negotiations with the owners of 21 residences that would be within 50 feet of the construction right-of-way along the 326.9-mile pipeline. To reduce construction-related impacts for these properties, Enbridge has developed site-specific construction and mitigation plans for construction activities near residential and commercial structures.

The area of the CNF crossed by the proposed pipeline is completely within the LLR. (For a detailed description of impacts and mitigation measures within the LLR and CNF, refer to Appendix U.) The proposed pipeline would also cross approximately 12.9 miles of the FDL Reservation; the entire length of the pipeline through the reservation would be collocated with an existing pipeline. Enbridge is working closely with FDL to develop site-specific mitigation and minimization measures for reservation lands.

The proposed Alberta Clipper Project would cross various recreation and special interest areas, resulting in temporary construction impacts and potential permanent impacts. Enbridge has developed mitigation measures for these areas, including an alternative construction configuration through the Pokegama Carnegie Wetland Complex to minimize impacts to the wetlands and Douglas County Forest within the area (Pokegama CRM Plan [Appendix T]).

Implementation of measures in the state-specific EMPs (Appendix C), AMP (Appendix F), Noxious Weed Plans (Appendix H), Revegetation and Restoration Monitoring Plans (Appendix K), and Construction Environmental Control Plan (Appendix M) would reduce potential land use impacts. Enbridge has committed to implementing a comprehensive inspection, monitoring, and compliance control plan to ensure that multiple contractors comply with the conditions of permits. This includes employing at least three Environmental Inspectors per spread to conduct oversight of pipeline construction as well as funding third-party inspectors, approved by state and or federal agencies, who would be assigned to each construction spread to oversee the contractors and Environmental Inspectors. Further, Enbridge has developed a Complaint Handling Procedures Plan (Appendix X) to ensure that all landowner concerns are handled appropriately.

Implementation of the Enbridge proposed plans and mitigation would result in overall minor impacts to land use.

ES 8.10 SOCIOECONOMICS

Construction and operation of the proposed Project could result in several types of socioeconomic impacts, including temporary impacts during construction and more long-term or permanent impacts during operation of the pipeline. Possible temporary impacts include changes to local population levels and demographics, increased demands for housing and public services, changes in transportation needs, increased traffic, and increased employment opportunities or needs for local goods. Long-term impacts would include increased employment (minor), income benefits, and increased tax revenue due to property taxes paid by Enbridge.

Overall, impacts related to socioeconomic resources are expected to be minor but mostly positive for the proposed Project.

ES 8.11 CULTURAL RESOURCES

For the proposed Alberta Clipper Project, the principal types of impacts that would occur to cultural resources include physical destruction or damage caused by pipeline trenching, related excavations, or boring; introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features by short-term pipeline construction or construction of aboveground appurtenant facilities and roads; and change of the character of the property's use or of physical features within the property's setting that contribute to its significance.

Enbridge's main method of mitigation for potential impacts to cultural resources is avoidance. Types of avoidance identified by Enbridge include abandonment (or non-use of the location), narrowing of the construction corridor, limiting impacts (no change to the existing structure), and use of alternative crossing methods (such as HDD). Based on the available information, Enbridge's proposed route, construction methods, and implementation of Unanticipated Discovery Plans (included as part of the Programmatic Agreement in Appendix R) would be expected to result in no impacts to cultural resources. Section 106 consultation is continuing, and a Programmatic Agreement will be used to conclude Section 106 review, to ensure that an appropriate formal process is followed for the outstanding cultural resources surveys that result from Project adjustments or from current denial of survey permissions by affected landowners.

ES 8.12 AIR QUALITY AND NOISE

Two types of impacts on air quality were considered for this EIS: temporary impacts from construction-related emissions and long-term impacts associated with emissions generated from continued operation of a stationary source. Air quality impacts associated with construction of the proposed Project would include emissions from fugitive dust, fossil-fueled construction equipment, open burning, and temporary fuel transfer systems and associated storage tanks. Air emissions during construction would be localized, intermittent, and short term. Emissions from construction-related activities associated with the proposed Project would not significantly affect local or regional air quality.

Project operations would result in minor air quality impacts. Direct impacts would be associated with periodic inspections via a vehicle. In addition, minor emissions from fugitive emissions from valves and pumping equipment during operation would occur.

Noise impacts for a pipeline project generally fall into two categories: temporary impacts resulting from construction equipment and long-term or permanent impacts resulting from operation of the facility. Construction of the proposed Project would be similar to other pipeline projects in terms of schedule, equipment used, and types of activities. Construction would increase noise levels in the vicinity of Project activities, and the noise levels would vary during the construction period. Residential, agricultural, and commercial areas within 500 feet of the proposed Project right-of-way could experience short-term inconvenience from the construction equipment noise. The drilling rig, pumps, generators, and mobile equipment used for HDD operations produce noise that may impact nearby noise-sensitive uses. If noise from HDD operations cannot be mitigated to the required level, other measures—such as providing temporary lodging at a local motel for affected residents—could be used to avoid exposing residents to objectionable noise. Noise impacts from construction would be temporary and minor if appropriate mitigation measures are implemented.

Noise impacts from operation of the pipeline would originate from the pump stations. Enbridge has proposed several mitigation measures at pump stations to reduce noise associated with the operation of pump stations for the proposed Project. Material traveling through the buried pipeline would not be expected to emit audible noise above the surface or produce a perceptible level of vibration.

Overall, the impacts to air quality and noise during construction of the proposed Project are expected to be short term and minor. Air and noise impacts during operations would be minor but long term.

ES 8.13 RELIABILITY AND SAFETY

The majority of construction spills associated with oil pipelines are relatively small and consist of refined products (such as gasoline, diesel, and lubricating and hydraulic fluids); most result from vehicle and construction equipment fueling and maintenance in construction staging areas or along the construction right-of-way. Spills from the proposed pipelines or associated pump stations, valves, or pigging facilities could occur during operation.

Crude oil released into the environment (spills) may affect natural resources, human uses and services, and aesthetics to varying degrees, depending on the cause, size, type, volume, rate, temperature of the oil, location, season, environmental conditions, weather, and associated response actions. There is also the possibility for a spill of sufficient magnitude to substantially affect natural resources and human uses of the environment. Impacts of oil spills to natural resources and human uses typically result from physical coating or chemical exposure of soils, sediments, plants, animals, or areas used by people.

To minimize the potential for releases from the proposed pipeline and associated facilities, Enbridge would design and construct the proposed Project in accordance with applicable design, engineering, and safety standards. To ensure the integrity of the pipeline and associated facilities during operation, Enbridge would incorporate the proposed Alberta Clipper Project into its existing programs that (1) ensure that the integrity of its existing pipeline systems is maintained, including inspection of the pipelines and pipeline alignments; and (2) detect and respond to releases of oil that may occur. Enbridge would expand its existing Environmental Response Plan (ERP) to incorporate the Alberta Clipper Project. The existing plan has been approved by DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA); PHMSA approval of the revised plan would be required for pipeline operation. The ERP identifies specific measures to prevent a release and to implement the appropriate emergency response if a release were to occur. A summary of the procedures included in the ERP is presented in Appendix Q.

With implementation of Enbridge plans and procedures, including adherence to federal requirements, the reliability and safety of the proposed Alberta Clipper Project would meet or exceed industry standards.

ES 8.14 CUMULATIVE IMPACTS

A cumulative impacts analysis was conducted to assess the potential for significant cumulative impacts caused by the Alberta Clipper Project in conjunction with other past, present, and reasonably foreseeable projects. The analysis assessed cumulative impacts at a Project-wide level and a watershed-specific level.

The Project-wide assessment considered other large-scale projects in the Alberta Clipper Project area, including the existing Enbridge pipelines, other Enbridge pipelines that are currently being constructed or proposed, the Keystone pipeline, the MinnCan pipeline, the Great Lakes Gas natural gas pipeline, and the potential Murphy Oil Refinery Expansion. The primary impacts of the pipeline projects include short-term construction impacts and long-term land conversion, including potential impacts to the biological communities and human uses associated with that land. The cumulative analysis for refineries focused on air emissions, including greenhouse gas (GHG) emissions, for recently upgraded refineries and potential new refineries. Based on the cumulative emissions from recent refinery upgrades, it is estimated that the emissions associated with the 450,000 bpd transported via the Alberta Clipper Project would increase carbon monoxide (CO) emissions by about 1,000 tons per year (tpy), increase volatile organic compounds (VOCs) emissions by approximately 400 tpy, and decrease emissions of other pollutants. While there are no federal thresholds or guidelines for definitively assessing the significance of GHG emissions, direct GHG emissions associated with construction and operation of the Alberta Clipper Project would result in a negligible increase in GHG emissions relative to refinery emissions, total U.S. emissions, or global emissions. While there is a consensus in the scientific community that global GHG emissions have influenced climate change, there is no indication that the relative contribution of the proposed Alberta Clipper Project and the other large-scale and small-scale projects considered in the cumulative impact analysis would significantly contribute to climate change.

Overall, the Project-wide assessment concluded that the Alberta Clipper Project would not result in significant cumulative impacts during construction or operation when considered in conjunction with other large-scale projects in the Alberta Clipper Project area.

The watershed-level assessment addressed both large-scale projects and smaller-scale projects on a watershed-by-watershed basis along the Alberta Clipper Project route. The smaller-scale projects evaluated in each of these watersheds included state and county highway construction, commercial and residential development, flood control projects, government conservation programs, timber harvesting, and mining. The watershed-by-watershed assessment concluded that the Alberta Clipper Project would not result in significant cumulative construction or operation impacts when considered in conjunction with other large-scale and small-scale projects in individual watersheds along the Alberta Clipper Project route.

ES 9.0 CONCLUSIONS

The analysis presented in this EIS is based primarily on information provided in filings by Enbridge. It was further developed through data requests; literature searches; public and agency scoping; an analysis of alternatives; contacts with federal, state, tribal, and local agencies; and public comment on the DEIS. Based on the information provided in Section 4.0 of this EIS for each resource category, DOS concludes that the Alberta Clipper Project, as proposed, is the environmentally preferred alternative. This conclusion is predicated on Enbridge adhering to additional mitigation measures identified during this environmental review and further amended by permit requirements by federal, state, tribal, and local agencies with permit jurisdiction along the pipeline corridor.

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